

Literature Review

Assertive Community Treatment

What is Assertive Community Treatment (ACT)?

Assertive Community Treatment (ACT) was first developed for individuals with severe mental illness (Marx, Test, & Stein, 1973; Weisbrod, Test, & Stein, 1980). ACT, which is also known as the Program for Assertive Community Treatment (PACT), was initially designed to offer the support and resources of a hospital setting while allowing people to live in the community. The basic elements of ACT are 1) 24-hour/7-day per week availability of services; 2) small caseloads (e.g., 1 to 10); 3) individualized care from a coordinated, interdisciplinary team primarily to clients at home and in the community; and 4) assertive outreach for continuous, regular meeting/contact (Burns, 2010).

Clinicians and researchers developed ACT in response to the substantial rise in deinstitutionalization of persons with mental illness during the 1970s (Johnson, 2011). Originally, the aim of ACT was to help individuals manage their condition within the context of everyday living, with simultaneous concentration on rehabilitation and treatment (Weisbrod, Test, & Stein, 1980). Current ACT practices have adopted a recovery orientation, to support a time-limited treatment and recovery process for individuals with severe mental illness (Salyers & Tsemberis, 2007).

One key goal of coordinated team support is to reduce hospitalization by encouraging self-respect and responsibility among the individuals receiving care. One of the original goals of ACT was to keep individuals from becoming too dependent upon treatment providers (Weisbrod, Test, & Stein, 1980), and current ACT models now work to integrate recovery-oriented principles of care (Salyers & Tsemberis, 2007). A recovery orientation emphasizes support for self-direction, individualized and person-centered approaches, empowerment, holistic care, strengths-based treatment, nonlinearity, peer support, respect, hope, and responsibility (SAMHSA, 2008), though there is variability in recovery orientation in ACT programming (Salyers et al., 2013).

ACT teams typically include a clinical team leader (i.e., a social worker or psychologist), one or more nurses, a psychiatrist, and a substance use specialist (Teague, Bond, & Drake, 1998). ACT teams may be called community support programs, intensive community-treatment programs, mobile community-treatment teams, or assertive outreach teams (CARF International, 2016). There are also “bridge” ACT programs, which have most of the features of ACT implementation, but do not include a psychiatrist on the ACT treatment team (Bond, McGrew, & Fekete, 1995; Latimer, 1999). The original bridge program that used assertive community outreach was called Thresholds Bridge, developed in 1978, in which the case management team served as a bridge to connect individuals with severe mental illness to supportive services in the community. Programs such as Thresholds Bridge vary slightly from the program for Assertive Community Treatment in team staffing, programmatic focus, and larger caseloads (Bond et al., 1995). According to Mueser et al. (1998), the key difference between ACT and intensive case management (ICM) is that ACT clinicians have shared caseloads, whereas ICM teams have individual caseloads.

Factors that contributed to the adoption of ACT in practice included the endorsement of the National Alliance on Mental Illness (NAMI) and subsequent funding of a technical assistance center to coordinate implementation across the United States and lobby for Medicaid reimbursement (Morrissey, Meyer, & Cuddeback, 2007). In 1999, the approval of Medicaid reimbursement for ACT helped alleviate costs previously borne by state and local revenue, and supported the spread of ACT adoption (Morrissey et al., 2007; SAMHSA, 2008). With the rise of studies documenting the effectiveness of ACT, it was accepted as an evidence-based practice (Lehman et al., 1998; Mueser et al., 2003).

Adaptations of Assertive Community Treatment

Since its original implementation in the United States for adults with severe mental illness, ACT has been adapted for elderly persons with severe mental illness, homeless individuals with severe mental illness, persons with co-occurring mental illness and substance use disorder (youth and adults), justice-involved persons with severe mental illness, and frequent users of psychiatric hospitals. Replications of this approach have been implemented in Australia, Canada, Europe, Japan, the United Kingdom, and other international regions (Burns, 2010; Randall, Wakefield, & Richards, 2012).

Adaptations of ACT generally tailor the core elements of the model with theoretical guidance from work with the specific population, as well as practical limitations from the relevant setting.

Forensic ACT

Forensic ACT (ForACT) tailors the intervention for mentally ill individuals who have been criminal offenders or at risk of criminal offense (Marquant et al., 2016). ForACT

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differs from ACT in that it includes 1) the added goal of preventing arrest and incarceration, 2) a requirement that participants have a criminal justice history, 3) acceptance of most referrals from criminal justice agencies, and 4) the incorporation of supervised residential treatment for high-risk persons with co-occurring disorders (Lamberti, Weisman, & Faden, 2004). ForACT may also be implemented with clients referred by mental health courts (Cosden et al., 2005) or individuals detained in county jails for minor criminal offenses (Cusack et al., 2010).

Integrated ACT

Individuals who have co-occurring severe mental illness and substance use disorders represent another vulnerable population, for which ACT has been adapted. The integration of substance-use counseling as part of ACT has been called “Integrated ACT” (Fries & Rosen, 2011). Most ACT teams now include a substance use disorder specialist as a team member (SAMHSA, 2008).

ACT for Homeless Individuals

ACT has been adapted for homeless individuals with a severe mental illness or co-occurring disorder. For these ACT interventions, consumer advocates and family outreach workers have been added to the team (Lehman et al., 1997; 1999), as well as employment and housing specialists, and peer transporters (Young et al., 2014). In adapting ACT for these individuals, team members have worked to leverage local resources to support the acquisition of stable housing (Young et al., 2014).

Resource Group Assertive Community Treatment

Resource Group Assertive Community Treatment, which originated in New Zealand, includes consumers and their significant others as part of the ACT team (Nordén, Malm, & Norlander, 2012). Recovery-oriented practices focus on clients’ life goals, consumer involvement in treatment, and diverse treatment options to meet individual recovery needs; these offer many opportunities for consumer choice (O’Connell et al., 2005).

Family-Aided ACT

Family-Aided ACT has been adapted to better support persons with severe mental illness to achieve sustained employment (e.g., Drake et al., 1994, 1996; McFarlane et al., 2000). In family-aided ACT, the family network is used as a resource for identifying job leads, providing input on job goals, and supporting job retention (McFarlane et al., 2000). A vocational rehabilitation counselor is part of the ACT team and leads several group sessions with multiple families to support goal setting and the development of individualized vocational plans. The family-aided ACT includes coaching for participants in job search activities, as well as during the first initial months of employment.

Standards for Implementing Assertive Community Treatment

Because of ACT's multiple components, researchers have been challenged to determine which component or practice contributes to a specific outcome effect; however, they have found that programs with stricter adherence to ACT program standards of implementation show better outcomes for clients in reduced hospitalization and decreased substance use, compared with persons receiving standard care (e.g., Burns et al., 2007; Latimer, 1999; McHugo et al., 1999). Additionally, Bond et al. (2014) found greater sustainability of ACT implementation from better fidelity of ACT core practices.

Of the 73 program elements, 17 were designated as "critical components" using the Critical Components Assertive Community Treatment Interview (CCACTI) instrument (McGrew & Bond, 1994; McGrew et al., 1995). These critical components focus on staffing, organization, and service requirements of the ACT model. The Dartmouth ACT (DACT) Fidelity Scale (Teague, Drake, & Anderson, 1995; Teague et al., 1998) has become the standard fidelity measure for ACT (Lewin Group, 2000; Phillips et al., 2001). Researchers have documented acceptable reliability of the DACT as well as identified limitations in measuring the association between better implementation fidelity and improved client outcomes (Bond & Salyers, 2004; Winter & Calsyn, 2000).

Shortcomings of the DACT scale led to the development of the Tool for Measurement of Assertive Community Treatment (TMACT). Although the TMACT is still being refined, this 47-item instrument includes the following six subscales that provide a more robust definition of ACT implementation than past fidelity assessments: 1) operations and structure, 2) core team, 3) specialist team, 4) core practices, 5) evidence-based practices, and 6) person-centered planning and practices (Cuddeback et al., 2013; Monroe-DeVita, Teague, & Moser, 2011; Moser, Monroe-DeVita, & Teague, 2013).

Allness and Knoedler (1998) developed national standards for the PACT (a.k.a. ACT) model to accompany the start-up manual for PACT implementation. NAMI supported this project with the aim of establishing ACT programs in every state in the United States by 2002. More than 40 states have ACT teams; however, there is considerable variation in the number of teams operating in each state (e.g., 3 in Nebraska, 78 in New York State) (Monroe-DeVita, 2014). CARF International (the Commission for Accreditation of Rehabilitation Facilities) accredits health and human services programs around the world and first released standards for ACT in 2000 (Lewin Group, 2000). While the Lewin Group (2000) found CARF's initial standards to be more liberal than the PACT standards in caseload and hours of service, CARF's (2013) standards have been updated to require 24/7 care, daily staff meetings, and lower caseloads (one team per 8 to 10 clients) in programs that serve a greater percentage of individuals with acute needs.

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Effectiveness of Assertive Community Treatment

Several systematic reviews and meta-analyses have been conducted on the effectiveness of ACT for severely mentally ill persons and its various adaptations for homeless adults, individuals with co-occurring disorders, and justice-involved individuals. Two evidence reviews assessed the effects of ACT and other interventions focused on improving outcomes for homeless, mentally ill adults (Coldwell & Bender, 2007; DeVet et al., 2013). Additionally, Nelson, Aubry, & Lafrance (2007) reviewed literature on the effectiveness of intensive case management, ACT, and other housing support programs for severely mentally ill, homeless adults. One evidence review by Marquant et al. (2016) summarized effects from studies of forensic ACT (i.e., ForACT).

Several evidence reviews synthesized the findings from studies of ACT and ACT-like interventions for diverse populations, including mentally ill adults with co-occurring substance use disorders; homeless, criminal offenders; and veterans (Bond et al., 1995; Burns & Santos, 1995; Herdelin & Scott, 1999; Latimer, 1999; Mueser et al., 1998; Ziguras & Stuart, 2000). Additional literature reviews have summarized effects of various interventions (including ACT) aimed at improving outcomes for adults with co-occurring severe mental illness and substance use disorders (e.g., Drake, O'Neal, & Wallach, 2008; O'Campo et al., 2009). In a meta-analysis of 17 studies (including six RCTs), Nordén et al. (2012) investigated the effectiveness of Resource Group Assertive Community Treatment, which originated in New Zealand and includes consumers and their significant others as part of the ACT team. The authors of this meta-analysis found statistically significant, relatively large, positive effects of this ACT model on aggregated outcomes of psychiatric symptoms, client functioning, and well-being.

More than 50 experimental studies from 1975 to 2010 were represented in these 11 reviews and meta-analyses with different populations of severely mentally ill adults from the United States, and from Australia, Canada, and the United Kingdom. Over half of the studies are included in more than one of these evidence reviews. (See Table 1.)

This vast body of experimental literature illustrates a diversity of effects produced by ACT care in mental health symptoms, hospitalization duration and frequency, substance use, housing, employment, and quality-of-life outcomes. Interventions that adhere more closely to the original ACT elements and principles show higher levels of effectiveness, particularly in reduced hospitalizations. ACT and its adaptations show small, positive effects for numerous outcomes in several experimental studies, though study findings vary in determining positive effects of ACT. Herdelin and Scott (1999) found that higher levels of attrition and study sample sizes affected the variance explained by the ACT intervention in participant outcomes. Meta-analyses showed that

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ACT, compared with standard care, generally decreased time in the hospital, improved housing stability, and increased patient satisfaction. Outcomes that had mixed results across studies of either improved or neutral effect were jail time/arrests, medication compliance, psychiatric symptoms, substance use, social adjustment, vocational functioning, and quality-of-life assessments (e.g., Coldwell & Bender, 2007; Herdelin & Scott, 1999; Marquant et al., 2016; Mueser et al., 1998; Latimer, 1999).

Although ACT interventions have not shown consistent positive and statistically significant effects, compared with standard care on forensic, employment, and medication compliance outcomes, few controlled experimental studies have examined ACT program effects on these outcomes. In a study of the effectiveness of family-aided ACT, employment rates were higher among participants in the ACT group, compared with those participating in conventional vocational rehabilitation (McFarlane et al., 2000). Similarly, in a study of Forensic ACT, Cusack et al. (2010) showed that ForACT participants had fewer jail bookings if not lowered actual time in jail. Mueser et al.'s literature review (1998) highlighted variance in ACT's effectiveness in outcomes such as medication compliance, substance use, social functioning, and quality of life, which still requires further examination. Controlled experimental evaluations of new variations of ACT interventions may uncover moderating variables for the effectiveness of various practices for different populations and outcomes.

Cost Effectiveness of Assertive Community Treatment

Early cost-effectiveness analyses of ACT treatment showed that ACT was cost effective, compared with traditional treatment alternatives in producing better outcomes for the same or lowered hospitalization and mental health care costs (Clark et al., 1998; Essock, Frisman, & Kontos, 1998; Lehman et al., 1999; Rosenheck & Neale, 1998; Weisbrod, Test, & Stein, 1980; Wolff et al., 1997). ACT has been found to be cost effective when assessing client outcomes relative to per-patient costs, and with multiple adult populations with severe mental illness such as criminal offenders, those with co-occurring substance use disorders, and homeless individuals. (See Table 2.)

In a more recent era of declining inpatient hospitalization, Slade et al. (2013) analyzed the cost effectiveness of ACT in a quasi-experimental study that compared mental health inpatient utilization and costs for persons with mental illness who received ACT care versus a propensity-score matched, ACT-eligible sample who did not receive ACT, from 2001 to 2004. In their Veterans Administration hospital study, Slade et al. (2013) found that ACT produced cost savings for persons with more than 95 mental health inpatient bed days in the 12 months prior to ACT program entry, but did not produce cost savings for patients with fewer than 95 such days. They found that, in recent years, the proportion of clients with "high hospital use" is relatively small (i.e., about 4

percent), so the population that may produce such cost savings is relatively small. Even though ACT mental health care costs were \$1,361 higher than similar, non-ACT patients' mental health care, ACT patients' costs were lower for inpatient treatment (by 21 percent) and for mental health rehabilitation treatment (by 62 percent).

Self-reported limitations of cost-effectiveness studies include difficulties of ensuring accuracy of cost-estimation procedures and having large enough samples to detect differences in cost effectiveness between those randomly assigned to ACT care versus standard care (Lehmann et al, 1999; Wolff et al., 1997). Dewa et al. (2003) reported the importance of considering the indirect costs of providing ACT (i.e., the time involved in planning for direct client care) in cost-effectiveness studies. Study authors have also raised concerns about the generalizability of cost-effectiveness findings to other settings (e.g., Rosenheck & Neale, 1998).

**Table 1. Overview of Systematic Reviews and Meta-Analyses
on ACT (a.k.a. PACT), Forensic ACT, and Integrated ACT**

Study	Focus of the Review	Number of Experimental Studies	Overall Findings
Bond et al. (1995)	Meta-analysis of several experimental studies comparing outcomes for ACT versus standard care (including programs that serve both severely mentally ill and homeless adults)	4 (2 randomized controlled trials (RCTs) and 2 quasi-experimental designs (QEDs))	Compared with standard care, ACT participants had higher treatment retention rates and reduced hospital use. Quality-of-life outcomes did not differ between ACT and standard care.
Burns & Santos (1995)	Literature review of RCTs comparing outcomes for ACT versus standard care among various U.S. populations (homeless, dually diagnosed adults, veterans, patients with recent-onset schizophrenia) and mentally ill in Great Britain	8 RCTs	ACT programs produced wide variation of effects on several outcomes. Compared with standard care, four studies reported improved clinical status, reduced hospital use, and increased satisfaction with services among ACT participants. Two studies found no group differences in hospital use, and three studies found no group differences in clinical status. Three studies reported improved independent living among ACT participants versus standard care, and one study reported no group difference on this outcome.
Coldwell & Bender (2007)	Meta-analysis of RCTs (and separate analysis of within-group designs) that compare outcomes for ACT versus standard care for homeless, mentally ill adults	6 RCTs	Compared with standard case management, ACT showed a 37% greater reduction in homelessness in four of six RCTs. Across four RCTs, ACT did not show a significant difference in reduced hospitalization for this population. Hospitalization outcomes were measured differently in these studies, so effects were unclear. In two of three RCTs, ACT showed significant reduction in the severity of psychiatric symptoms for homeless, mentally ill adults.
DeVet et al. (2013)	Systematic review of studies on case management models for homeless adults, including ACT. Other models include intensive case management, standard case management, and critical time intervention.	6 RCTs	Compared with standard care, homeless adults who received ACT had more contact with case managers, more satisfaction with services, and accessed more services. ACT participants had fewer days of homelessness and more stable days of housing. For dually diagnosed homeless adults, ACT reduced length of hospital stays and the number of emergency room visits for mental health care, and increased housing stability. Use of other inpatient medical care, residential substance use disorder treatment, or mental health rehabilitation was not different between ACT and standard care groups. Compared with standard care, ACT did not reduce substance use or related problems, improve economic security, or increase social supports and quality of life.
Herdelin & Scott (1999)	Meta-analysis of the effectiveness of PACT (a.k.a. ACT) compared with standard inpatient/outpatient treatment in the U.S., and in Canada, Australia, and Great Britain, for mentally ill adults (including homeless, veterans, dually diagnosed)	19 RCTs	Overall effect sizes of ACT were small and positive for number of hospital admissions, length of hospital stay, social functioning, mental health symptoms, patient satisfaction, and cost effectiveness. However, studies conducted outside the U.S. showed higher cost-effectiveness effect sizes than U.S. studies. When accounting for study attrition, the amount of variance explained by the intervention's effects on various outcomes was significantly reduced. Power analysis revealed greater confidence in findings that ACT participants have greater client satisfaction, fewer hospital admissions, and reduced duration of hospital stays, but lower variance explained in cost, social functioning, and symptomology outcomes.
Latimer (1999)	Literature review of studies assessing	19 RCTs	In relation to comparison groups, ACT

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	effects of ACT, assertive outreach interventions (bridge-type: i.e., no psychiatrist on team), integrated ACT, and other ACT-like interventions of mentally ill adults (including homeless, dually diagnosed, criminal offenders, veterans)		participants showed reduced time in the hospital, increased independent living and stable housing, and reduced cost. Higher implementation fidelity is associated with better outcomes for ACT participants in reduced emergency room care and outpatient care, and lowered substance use.
Marquant et al. (2016)	Literature review of Forensic ACT (ForACT) interventions that target mentally ill criminal offenders and investigate program effects on forensic outcome measures (e.g., arrests, bookings, incarcerations)	3 RCTs	Compared with standard care, one RCT did not find differences in convictions, arrests, or detention days, but found reduced hospitalization for ForACT participants. Another RCT found reduced convictions, arrests, and detention days for ForACT participants, compared with treatment-as-usual. A third RCT compared ForACT with regular ACT and did not show positive effects on forensic outcomes in favor of ForACT; however, there were implementation problems noted.
Mueser et al. (1998)	Literature review of community care interventions including ACT, intensive case management, and other models for severely mentally ill adults including homeless, dually diagnosed, criminal offenders, individuals on public assistance, persons with schizophrenia	21 RCTs 6 QEDs	Compared with standard care, ACT and intensive case management generally decreased time in the hospital, improved housing stability, and demonstrated increased patient satisfaction. Outcomes that had mixed results across studies of either improved or neutral effect were jail time/arrests, medication compliance, psychiatric symptoms, substance use, social adjustment, vocational functioning, and quality-of-life assessments.
Norden et al. (2012)	Meta-analysis of international findings of Resource Group ACT versus standard care from 2001 through 2011	6 RCTs 11 QEDs	Compared with standard care, Resource Group ACT demonstrated positive, statistically significant, and medium-to-large effects on psychiatric symptoms, client functioning, and well-being.
Ziguras & Stuart (2000)	Meta-analysis of findings of ACT versus standard care, ACT versus clinical case management (CCM), and CCM versus standard care in studies conducted in the U.S. and around the world	19 ACT versus standard care; 9 ACT versus CCM	ACT outcomes were better than standard care in family burden, family satisfaction with services, and cost of care. ACT outcomes were superior to CCM and standard care in reduced hospitalization (proportion of clients and length of stay). ACT participant results were the same as CCM client outcomes in improved symptoms, improved social functioning, reduced dropout rates, and increased client satisfaction.

Table 2. Summary of Cost-Effectiveness Findings of ACT for Various Adaptations and Populations

Study	Population	Comparisons	Findings
Clark et al., 1998	Adults with co-occurring severe mental illness and substance use disorders	ACT versus standard case management (SCM)	Cost of ACT not significantly different from SCM over a 3-year period, and both ACT and SCM reduced substance use disorders.
Cusack et al., 2010	Jail inmates with severe mental illness	Forensic ACT versus treatment as usual	Cost of program, compared with treatment savings over 2-yr. period were comparable to treatment as usual. In relation to the comparison group, FACT participants had lower probability of avoiding jail; however, the number of jail days was about the same for both groups.
Essock et al., 1998	High-service users with severe mental illness	ACT versus SCM	Cost of ACT not significantly different from SCM over an 18-month period, and ACT participants spent more days in the community than did SCM participants.
Lehman et al., 1999	Homeless adults with severe mental illness	ACT versus standard public mental health services	ACT was more cost effective due to lowered cost for ACT in relation to reduced mental health inpatient days and ER care, and more days in stable housing.
Rosenheck & Neale, 1998	High-service users with severe mental illness	Intensive psychiatric community care (which is much like ACT) versus standard hospital-based care	ACT-like care produced greater long-term clinical improvement for patients, and when fully implemented, is about the same cost as standard hospital-based services.
Slade et al., 2013	Mentally ill adults eligible for ACT services at U.S. VA Hospital	ACT services versus treatment as usual	Cost savings achieved for patients with more than 95 mental health inpatient bed days in prior year.
Weisbrod, Test, & Stein, 1980	Severely mentally ill adults	ACT versus traditional, hospital-based treatment	ACT care produced both added benefits and costs; however, benefits were more than \$400 per year than added costs.
Wolff et al., 1997	Homeless adults with severe mental illness	ACT (ACT with and without community workers) versus brokered case management	Both ACT conditions and brokered case management cost about the same amount, and ACT conditions produced better results for clients (i.e., reductions in psychiatric symptoms).

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